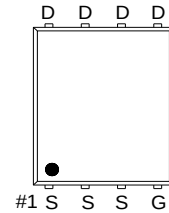
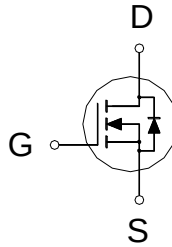




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	8m Ω	46A



G. GATE
D. DRAIN
S. SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ³	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	46	A
	$T_C = 100\text{ }^{\circ}\text{C}$		29	
Pulsed Drain Current ¹		I_{DM}	120	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	12	
	$T_A = 70\text{ }^{\circ}\text{C}$		9.7	
Avalanche Current		I_{AS}	20	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	20	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	30	W
	$T_C = 100\text{ }^{\circ}\text{C}$		12	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.1	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.3	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		59	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		4.1	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

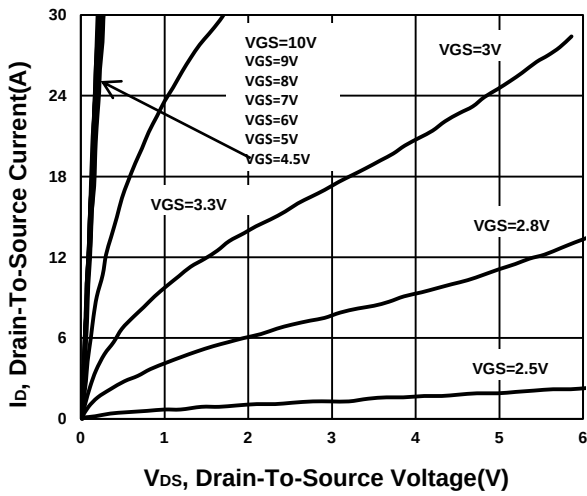
³Package limitation current is 20A.

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

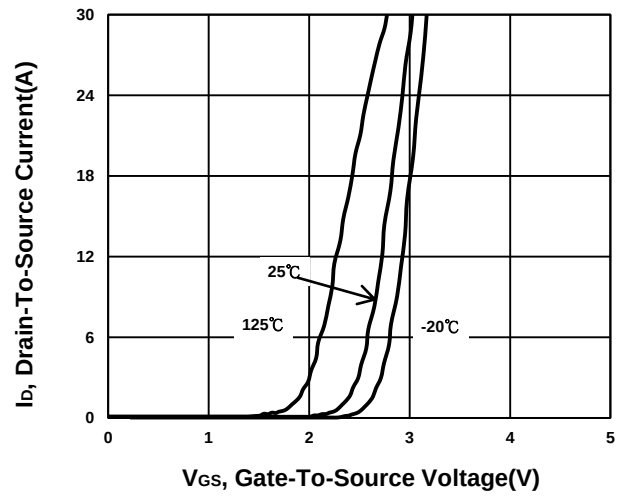
PARAMETER	SYMBOL		TEST CONDITIONS	LIMITS			UNIT
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}		V _{GS} = 0V, I _D = 250μA	30			V
Drain-Source Breakdown Voltage (transient)	V _{(BR)DSS(t)}		V _{GS} = 0V, I _{D(aval)} = 10A T _{case} = 25 °C , t _{ransient} = 100ns	34			
Gate Threshold Voltage	V _{GS(th)}		V _{DS} = V _{GS} , I _D = 250μA	1.3	1.8	2.3	
Gate-Body Leakage	I _{GSS}		V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}		V _{DS} = 24V, V _{GS} = 0V			1	μA
			V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}		V _{GS} = 4.5V, I _D = 12A		7.9	12	mΩ
			V _{GS} = 10V, I _D = 12A		5.8	8	
Forward Transconductance ¹	g _{fs}		V _{DS} = 5V, I _D = 12A		48		S
DYNAMIC							
Input Capacitance	C _{iss}		V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		745		pF
Output Capacitance	C _{oss}				144		
Reverse Transfer Capacitance	C _{rss}				84		
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		3.3		Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V , V _{GS} = 10V, I _D = 12A		15.4	18.5	nC
		V _{GS} = 4.5V			8.4	10.1	
Gate-Source Charge ²	Q _{gs}				2		
Gate-Drain Charge ²	Q _{gd}				4.6		
Turn-On Delay Time ²	t _{d(on)}		V _{DS} = 15V , I _D ≅ 12A, V _{GS} = 10V, R _{GEN} =6Ω		22		nS
Rise Time ²	t _r				19		
Turn-Off Delay Time ²	t _{d(off)}				38		
Fall Time ²	t _f				20		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)							
Continuous Current ³	I _S					25	A
Forward Voltage ¹	V _{SD}		I _F = 12A, V _{GS} = 0V			1.2	V
Reverse Recovery Time	t _{rr}		I _F = 12A, dI _F /dt = 100A / μS		15.7		nS
Reverse Recovery Charge	Q _{rr}				4.4		nC

¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.³Package limitation current is 20A.

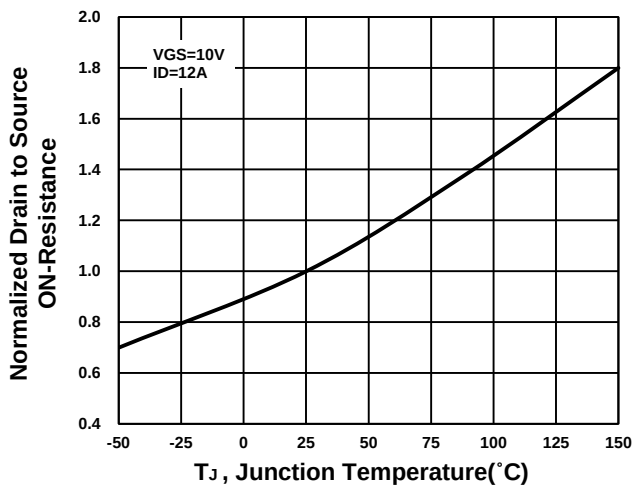
Output Characteristics



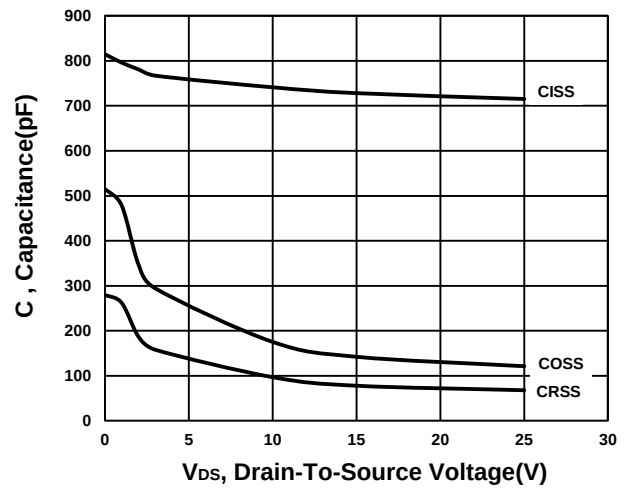
Transfer Characteristics



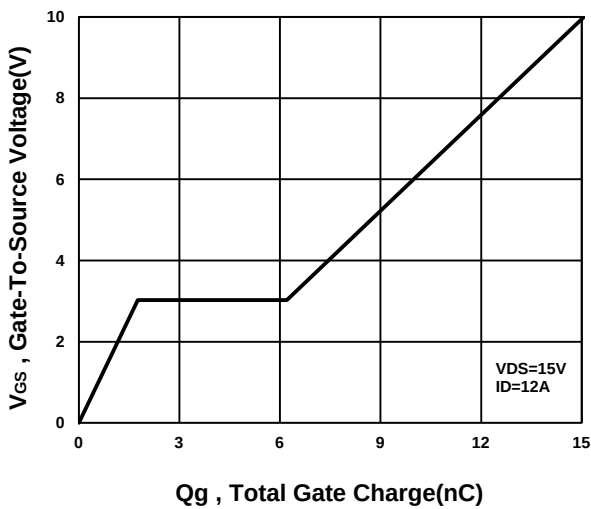
On-Resistance VS Temperature



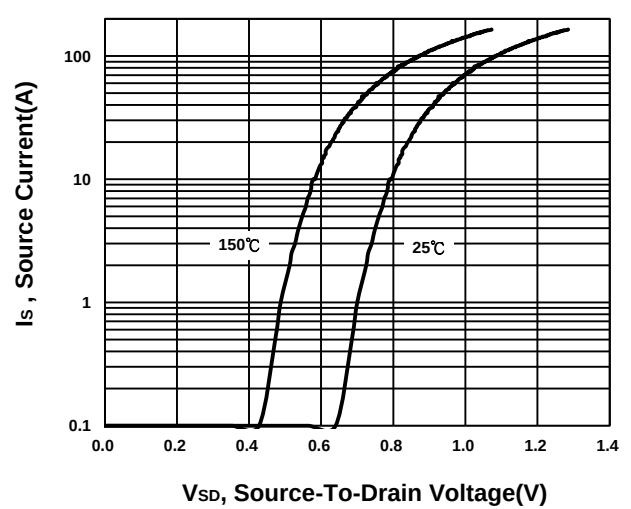
Capacitance Characteristic



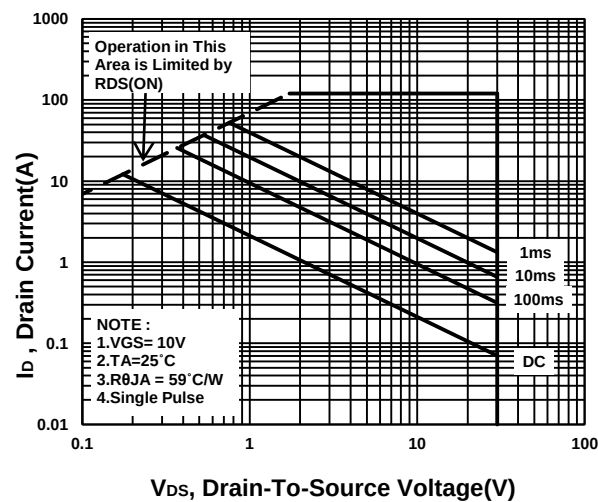
Gate charge Characteristics



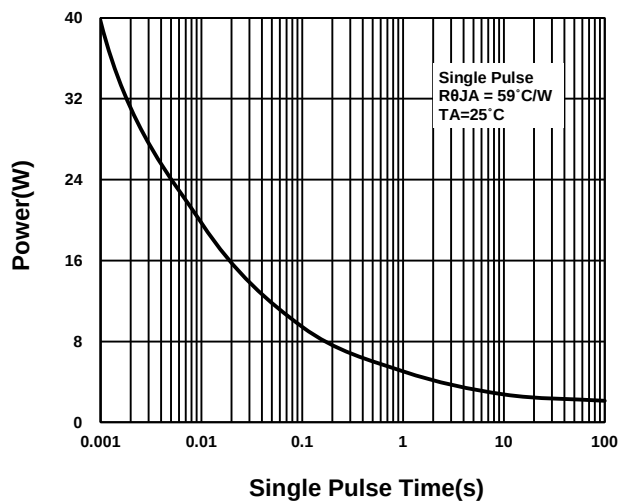
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

